WHAT IS CLAIMED IS:

1. A method for measuring a water concentration in ammonia, comprising using ammonia having a water concentration of 10 ppm or less as a reference gas, introducing the ammonia at a constant flow rate into a multi-reflection long optical path cell, and measuring infrared absorption intensity of water at a wave number at which infrared absorptions of ammonia and water do not overlap.

2. The method for measuring a water concentration in ammonia as claimed in claim 1, wherein the measurement wave number used is in the range of from 3,500 to 4,000 cm^{-1}, from 2,600 to 3,100 cm^{-1}, or from 1,900 to 2,400 cm^{-1}.

3. The method for measuring a water concentration in ammonia as claimed in claim 2, wherein said measurement wave number is one or more selected from the group consisting of 3600, 3609, 3612, 3619, 3629, 3634, 3649, 3656, 3670, 3675, 3688, 3691, 3701, 3709, 3712, 3719, 3722, 3727, 3732, 3736, 3741, 3744, 3749, 3752, 3756, 3759, 3766, 3770, 3779, 3785, 3796, 3801, 3807, 3816, 3821, 3826, 3831, 3835, 3837, 3840, 3843, 3854, 3862, 3865, 3870, 3874, 3880, 3885, 3891, 3894, 3899, 3902, and 3904 cm^{-1} (variation width: ± 1 cm^{-1}).

4. The method for measuring a water concentration in ammonia as claimed in claim 3, wherein said measurement wave number is one or more selected from the group consisting of 3801, 3807, 3816, 3821, 3837 and 3854 cm^{-1}

(variation width ±1 cm^{-1}).

5. The method for measuring a water concentration in ammonia as claimed in any one of claims 1 to 3, wherein said ammonia is obtained by vaporizing liquefied ammonia.

6. The method for measuring a water concentration in ammonia as claimed in claim 1, wherein said ammonia has a water concentration of 10 ppm or less.

7. The method for measuring a water concentration in ammonia as claimed in claim 6, wherein said ammonia has a water concentration of 1 ppm or less.

8. The method for measuring a water concentration in ammonia as claimed in claim 7, wherein said ammonia has a water concentration of 0.1 ppm or less.

9. The method for measuring a water concentration in ammonia as claimed in claim 1, wherein ammonia gas is introduced into said multi-reflection long optical path cell at a flow rate of from 0.1 to 5 L/min.

10. The method for measuring a water concentration in ammonia as claimed in claim 1, wherein an infrared ray is multi-reflected to have an infrared optical path length of from 1 to 40 m.

11. An infrared measuring apparatus comprising an infrared spectroscope, a long optical path gas cell, a flow rate controlling unit and a vaporizer, wherein ammonia gas vaporized by the vaporizer is fed into the

flow rate controlling unit, the ammonia gas is introduced from the flow rate controlling unit into the long optical path gas cell at a constant flow rate, and the water content of ammonia in the long optical path gas cell is measured by the infrared spectroscope.

12. The infrared measuring apparatus as claimed in claim 11, wherein said long optical path gas cell has a volume of from 0.1 to 5 L.

13. A method for producing ammonia having a decreased water content, wherein the method comprises the steps of distilling crude ammonia and measuring a water concentration in ammonia using a measurement method as claimed in any one of claims 1 to 10.

14. A method for producing ammonia having a decreased water content, wherein the method comprises the steps of purifying crude ammonia by contacting it with at least one purifying agent selected from the group consisting of metals, metal oxides and zeolite and measuring a water concentration in ammonia using a measurement method as claimed in any one of claims 1 to 10.

15. The method for producing ammonia as claimed in claim 13 or 14, wherein ammonia having a water content of 1 ppm or less is produced.

16. The method for producing ammonia as claimed in claim 15, wherein ammonia having a water content of 0.1 ppm or less is produced.

17. Ammonia having a water content decreased to 1 ppm or less produced by a method as claimed in claim 15.

18. Ammonia having a water content decreased to 0.1 ppm or less produced by a method as claimed in claim 16.

19. A semiconductor nitride film produced using ammonia having a decreased water content obtained by a method as claimed in any one of claims 13 to 16.

20. A group III-V compound semiconductor produced using ammonia having a decreased water content obtained by a method as claimed in any one of claims 13 to 16.

21. The group III-V compound semiconductor as claimed in claim 20, wherein said group III-V compound semiconductor is GaN, $In_xGa_{1-x}N$, $B_xGa_{1-x}N$, $Al_xGa_{1-x}N$, $In_xAl_yGa_{1-x-y}N$, GaN_pAs_{1-p}, $GaN_pAs_qP_{1-p-q}$, or $In_xGa_{1-x}N_pAs_{1-p}$ (provided that x, y, p, and q are numbers that satisfy $0<x, y, p, q<1$).